

FY02 JEFFERSON LAB
SELF ASSESSMENT OF
CONTRACT PERFORMANCE



Thomas Jefferson National Accelerator Facility

DIRECTOR'S OVERVIEW

Jefferson Lab's performance based management contract requires ongoing self-assessment based on negotiated performance metrics. An aggressive, comprehensive self-assessment allows us to identify our accomplishments and strengths as well as areas for improvement. Our self-assessment program is a value-added, useful activity for line management. In fiscal year 2002, our performance metrics resulted in a rating of "Outstanding."

Our nuclear physics experimental program continues to produce excellent results. In the 2002 S&T review, the Panel gave high praise for the outstanding science results coming from our program. Delivering 5.8 GeV beam, we have completed data taking for 78 full experiments and parts of 21 more of the approved 133 experiments. Peer review outcomes for Science and Technology, Business and Administrative Practices, Institutional Management (held in October 2002), and Radiation Control all resulted in "outstanding" ratings for the Lab this year. Our levels of polarized beam remain unprecedented. We continue to move forward in efforts to achieve the 12GeV accelerator upgrade, our highest priority for the future, by preparing for CD-0. Our leadership in the core competency of superconducting radio frequency (SRF) enables us to collaborate on world-class projects—the SNS currently and, with project approval, RIA in the near future. Our performance on the SNS in FY02 rates "outstanding" with on cost and schedule completion of deliverables. We look forward to conducting a Spring workshop and at the request of Office of Science Director, Dr. Ray Orbach, a science review of our Free Electron Laser program. This will provide us a unique opportunity to evaluate the FEL's outstanding science potential, which we believe will lead us to potential funding sources within the Office of Science. In other areas, EH&S performance again rates "outstanding," and we are very proud of our Becoming Enthusiastic About Math and Science (BEAMS) program as it continues to shine. This excellent program was given special recognition at our 2002 Institutional Management review as being "without equal" among Office of Science labs. Beams helps 6th, 7th and 8th grade students improve their math and science scores on Virginia's Standards of Learning tests.

This year marked the Lab's first full year under the leadership of a newly appointed permanent director. As 2001 presented challenges of leadership transition, 2002 brought additional change. An enhanced organizational structure was put in place. To optimize efficiency and streamline operations among departments, the restructuring led to the creation of the positions of Chief Information Officer and Chief Financial Officer, as well as an Office of Project Management and Finance. Of further benefit was the formation and appointment of an assistant director. I am optimistic that ongoing negotiations for the Chief Scientist position, currently the most critical hire for the Laboratory, will be completed in the very near future and the vacancy filled by an outstanding, world-class candidate. Other changes have included a strengthening of the Theory Group with additional scientists to enhance current efforts in the nuclear physics program and to augment support for the Lattice QCD initiative.

In February, we underwent a major DOE Operations Review, which found us to be "lean and mean" and validated the need for additional operating funds to achieve optimization in the years to come. In July, our on-site Institutional Plan Review was held, and we presented our 2003-2007 plan to the Division of Nuclear Physics. This plan sets high-level goals that provide a basis for Lab activities. As stated in the plan, our goals are to: enable and conduct a physics research program of the highest scientific priority at the nuclear/particle physics interface; conduct research and development relevant to future grand instruments for science and technology (accelerators, detectors, and lasers); enable and

conduct a photon science research and development program of the highest scientific priority using a variety of instruments and serving academia, industry, and the military; develop applications of unique scientific and technical tools for use in other areas based on JLab core competencies (e.g., special computation and instruments for life and health sciences); make necessary investments in the future scientific vitality of the facility; continue as a recognized leader in safe, secure, and environmentally sound operation; and serve as an asset to, and an integral member of, our community.

I am pleased to report the creation of the director's Science Policy Advisory Group, a panel of experts to help assess our current strategic direction and identify new directions and initiatives. We held our kick-off meeting in October, with very positive results, and have scheduled the next meeting in June to discuss scientific staffing and leadership. I also formed an internal Director's Strategic Planning Working Group, a cross-cutting team from the Lab to assist in the development and implementation of institutional goals and initiatives.

As we work to accomplish our goals, the immediate challenges will be to: (1) maximize productivity without sacrificing the longer-term future; (2) maintain leadership in our core competencies; and (3) implement the 12 GeV upgrade in a constrained budget scenario. I am confident that we will meet these challenges and look forward to achieving continued success in 2003 and the years to come.

OVERVIEW OF FY02 APPENDIX B PERFORMANCE MEASURES SCORING BY PERFORMANCE AREA

APPENDIX B PERFORMANCE MEASURES AND THEIR KEY INDICATORS

Section	Description	Key Indicator	Point Value
1	Outstanding Science and Technology	Peer Review	300
2	Reliable Operations	Delivered Physics Research Operations	250
3	Production of Scientific and Technical Manpower	Number of Student Years on Jefferson Lab-related research activities	75
4	Corporate Citizenship – Public Outreach Corporate Citizenship – Tech Transfer	<ul style="list-style-type: none"> Public Participation Non-DOE Investment in Jefferson Lab Initiatives 	75
5	Quality Performance in Environment, Health, and Safety	<ul style="list-style-type: none"> Cost of Injuries Environmental Permit Exceedances 	100
6	Business & Administrative Practices	Peer Review	100
7	Responsible Institutional Management	Peer Review	100
8	Spallation Neutron Source	Schedule Performance	35
Total Point Value			1035

TOTAL SCORE - APPENDIX B PERFORMANCE MEASURES

Section	Description	Point Value	Points Awarded	Percent of Assigned Pts	Adjectival Rating
1	Outstanding Science and Technology	300	285.9	95.3%	Outstanding
2	Reliable Operations	250	246.1	98.4%	Outstanding
3	Production of Scientific and Technical Manpower	75	74.4	99.2%	Outstanding
4	Corporate Citizenship	75	74.1	98.8%	Outstanding
5	Quality Performance in Environment, Health, and Safety	100	90.2	90.2%	Outstanding
6	Business & Administrative Practices	100	96.1	96.1%	Outstanding
7	Responsible Institutional Management	100	93.0	93.0%	Outstanding
8	Spallation Neutron Source	35	35.0	100.0%	Outstanding
Total FY02 Score Appendix B		1035	994.8	96.1%	Outstanding

DETAILS OF SCORES BY PERFORMANCE MEASURE

1. Outstanding Science and Technology						
PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.0	Outstanding Science and Technology	300	285.9	300	285.9	Outstanding
TOTAL OUTSTANDING S&T		300	285.9	% of assigned pts = 95.3%		Outstanding
2. Reliable Operations						
PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.0	Delivered physics research operations	150	150.0	4187.1 hours	5439.4 hours	Outstanding
2.1	Beam availability	25	25.0	70%	72.8%	Outstanding
2.2	Experimental equipment availability	25	25.0	78.5%	86.9%	Outstanding
2.3	Effectiveness of the scheduling process	25	23.2	100%	92.9%	Outstanding
2.4	Overall operations effectiveness	25	22.9	28 weeks	25.6 weeks	Outstanding
TOTAL RELIABLE OPERATIONS		250	246.1	% of assigned pts = 98.4%		Outstanding
3. Production of Scientific and Technical Manpower						
PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
3.0a	Number of student years per year on Jefferson Lab related research or technical activities	25	25.0	1,075	1,177	Outstanding
3.0b	Number of advanced degrees per year based on Jefferson Lab research	35	35.0	53	97	Outstanding
3.1	Number of advanced degrees per year granted by minority universities and based on Jefferson Lab research	5	5.0	6	13	Outstanding
3.2	Participation of students from groups traditionally underrepresented in physical science and engineering fields	10	9.4	35%	32%	Outstanding
TOTAL SCIENTIFIC MANPOWER		75	74.4	% of assigned pts = 99.2%		Outstanding
4. Corporate Citizenship						
PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.0	Public participation (in effective person-hours per year)	20	20.0	80,000	95,684	Outstanding
4.1a	Public visibility: number of media citations mentioning Jefferson Lab and its science and technology	7	7.0	400	976	Outstanding
4.1b	Percentage of these citations mentioning DOE	3	3.0	100%	100%	Outstanding
4.2	Customer satisfaction	5	4.7	100%	93%	Outstanding
	SUBTOTAL PUBLIC OUTREACH	35	34.7	% of assigned pts = 99.1%		Outstanding
4.3	Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind)	20	20.0	2 – 2.5% of JLab ops budget	12%	Outstanding
4.4	Intellectual property generation as indicated by the annual number of (a) Patent applications (b) Patents awarded (c) License agreements	10	10.0	5 or 1 or 2	9 6	Outstanding
4.5	Benefit to partners based on customer surveys	10	9.4	5.0	4.7	Outstanding
	SUBTOTAL TECH TRANSFER	40	39.4	% of assigned pts = 98.5%		Outstanding
TOTAL CORPORATE CITIZENSHIP		75	74.1	% of assigned pts = 98.8%		Outstanding

5. Quality Performance in Environment, Health, and Safety						
PM	Description	Point Value	Pts Awd	Goal	Raw Score	Adjectival Rating
5.0a	Occupational Injury Cost Index	35	27.8	50% better than DOE lab average	2.2 times the DOE lab average	Good
5.0b	Environmental Exceedances	20	20.0	4 times as good as the DOE complex average	No exceedances	Outstanding
5.1	Lost Work Day Case Rate	15	13.4	50% better than DOE lab average	1.2 times the DOE lab average	Excellent
5.2a	Reportable Radiation Exposures	4	4.0	Satisfactory ALARA program; no exposures >80% of ORPS threshold	Better than satisfactory program; no exposures	Outstanding
5.2b	Hazardous Substance Exposures	4	4.0	No exposures above OSHA action level	No exposures	Outstanding
5.3	Solid Waste Recycled	6	6.0	Exceed FY94 baseline ratio by 44%	Exceeded baseline by more than 44%	Outstanding
5.4a	Radioactive Waste Generation	4	3.8	>90% of radioactive waste generated for useful purposes	95%	Outstanding
5.4b	Hazardous Waste Generation	4	4.0	Produce <.25 of maximum useful hazardous waste	.06	Outstanding
5.5	Peer Review of the Radiological Control Program	4	3.8	Appropriate program = 100	94%	Outstanding
5.6	“Highly Protected Risk” Rating for High-Value Facilities	4	3.4	All facilities meet highly protected risk designation	93%	Excellent
TOTAL EH&S		100	90.2	% of assigned pts =90.2%		Outstanding

6. Quality of Business and Administrative Practices						
PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.0	Peer Review	70	66.5	100%	95%	Outstanding
	SUBTOTAL PEER REVIEW	70	66.5	% of assigned pts = 95%		Outstanding
6.1	% of overrun on all projects > \$100K	1	1.0	≤ 8%	0%	Outstanding
6.2	Variance of scheduled completion time for projects > \$100K	1	1.0	≤ 1.10	.59	Outstanding
6.3	% of scheduled preventive maintenance tasks completed by their scheduled due dates	2	2.0	≥ 94%	96.1%	Outstanding
6.4	Average % of all open corrective maintenance tasks that have been open for > 3 months	2	2.0	≤ 10%	6.5%	Outstanding
	SUBTOTAL FACILITIES (6.1 – 6.4)	6	6.0	% of assigned pts = 100%		Outstanding
6.5a	% of value of property located during the inventory cycle: Capital Property*	N/A	N/A	N/A	N/A	N/A
6.5b	% of value of property located during the inventory cycle: Sensitive Property	3	3.0	>99%	99.2%	Outstanding
6.5c	% of value of property located during the inventory cycle: Stores Property	1	1.0	>99%	99.7%	Outstanding
6.6	% of values of Stores Inventory reduced	1	0.9	≥ 10%	10.4%	Excellent
	SUBTOTAL PROPERTY (6.5 – 6.6)	5	4.9	% of assigned pts = 98%		Outstanding
6.7	Number of CAS violations	1	1.0	0	0	Outstanding
6.8	Dollar % of invoices deemed unallowable	1	1.0	<1%	.37%	Outstanding
6.9	% of vendor invoices paid with discounts lost	1	1.0	<1%	.01%	Outstanding
6.10	% of annual actual cost variance from budget for each overhead pool	1	1.0	<3%	1.8%	Outstanding
6.11	Number of occurrences that Cost Management Report had to be resubmitted to Contracting Officer – DOE Site Office	1	1.0	0	0	Outstanding
6.12	Number of audit errors in travel expense reports	1	1.0	<2%	0	Outstanding
	SUBTOTAL FINANCE (6.7 – 6.12)	6	6.0	% of assigned pts = 100%		Outstanding
6.13	Average procurement cycle time	3	3.0	<11 days	5.68 days	Outstanding
6.14	% of total available purchasing dollars awarded to: small business concerns, small women-owned business concerns, and small disadvantage business concerns	SB 1 WO 1 SD 1	1.0 1.0 1.0	≥50% ≥6% ≥6%	57.4% 12.5% 9.5%	Outstanding
	SUBTOTAL PROCUREMENT (6.13 – 6.14)	6	6.0	% of assigned pts = 100%		Outstanding
6.15a	% of action oriented diversity commitments as established in the Affirmative Action Plan	1	1.0	≥ 90%	100%	Outstanding
6.15b	Representation of protected classes within each EEO-1 category	1	0.9	100% Maintained	95%	Excellent
6.16	Sustainable EEOC charges	1	1.0	0 charges	0	Outstanding
6.17	Compensation positions aligned with market practices	1	1.0	± 3% of market average	-2.0%	Outstanding
6.18	% of 3-year rolling average of annual increases in premium cost relative to market	1	0.8	≥ 5% below market data	.8%	Excellent
6.19	% of current year's papers written by JLab staff or Users placed online	1	1.0	≥ 97%	100%	Outstanding
	SUBTOTAL HUMAN RESOURCES AND SERVICES (6.15 – 6.19)	6	5.7	% of assigned pts = 95.0%		Outstanding
6.20	Number of times JLab computer systems were compromised or used to attack other systems	1	1	≤ 1	1	Outstanding
	SUBTOTAL CYBER SECURITY (6.20)	1	1.0	% of assigned pts = 100%		Outstanding
	TOTAL BUSINESS & ADMIN PRACTICES	100	96.1	% of assigned pts = 96.1%		Outstanding

7. Responsible Institutional Management						
PM	Description	Pt Val	Pts Awd	Goal	Raw Score	Adjectival Rating
7.0	Responsible Institutional Management	100	93.0	100	93	Outstanding
TOTAL INSTITUTIONAL MANAGEMENT		100	93.0	% of assigned pts = 93%		Outstanding
8. Spallation Neutron Source						
PM	Description	Pt Val	Pts Awd	Goal	Raw Score	Adjectival Rating
8.0	Spallation Neutron Source	35	35.0	≤ one month behind schedule	.6 month behind	Outstanding
TOTAL SPALLATION NEUTRON SOURCE		35	35.0	% of assigned pts = 99.6%		Outstanding
Total Appendix B Score on Performance Measures						
TOTAL APPENDIX B SCORE		1035	994.8	% of assigned pts = 96.1%		Outstanding

1. Outstanding Science and Technology

Overview

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
1.0	Outstanding Science and Technology	300	285.9	300	285.9	Outstanding
TOTAL OUTSTANDING S&T		300	285.9	% of assigned pts = 95.3%		Outstanding

The experimental program at Jefferson Lab continues in steady state operation, with all three halls in production running at design specification. Following PAC22, the complete approved experimental program broken down by subject and Hall is:

Topic	Number	Hall A	Hall B	Hall C
Nucleon and Meson Form Factors and Sum Rules	21	8	4	9
Few Body Nuclear Properties	26	16	5	5
Properties of Nuclei	27	8	11	8
N^* and Meson Properties	42	6	28	8
Strange Quarks	17	4	11	2
Total	133	42	59	32

The Lab believes that this approved program represents some of the best nuclear physics that will be done anywhere in the next ten years. The program to date is having a major impact on our understanding of the basic quark structure of matter, and the portion of the program that has been approved but not yet run is of uniformly high quality as a consequence of both the outstanding capabilities of the accelerator and experimental equipment and the intense competition for beam time.

As of the end of FY02, we have completed data-taking for roughly 67% of this program (though analysis of the data is not as far along). Full data is at hand for 78 of the 133 approved experiments, and significant portions of the needed data have been obtained for 21 more. We were gratified to see that the Science and Technology Peer Review Panel agrees with our assessment of the significance of this program, unanimously endorsing it as outstanding, and that the Panel appreciated the progress toward reducing the backlog through a combination of reliable operations and the jeopardy review process.

Other achievements of significance in the nuclear physics program included: a year of three-hall operation with good accelerator and high hall availability and a multiplicity of 2.27; the continued delivery of >5 GeV beam for physics; and the development of the unique beam structure required for the G0 experiment. The large backlog of experiments (~5 years in Halls A and C and 3 years in Hall B at the present, 30 week/year level of operations) continues to be a concern. Progress has been made toward reducing it through a thoughtful review of scientific priorities via the PAC jeopardy process, and this avenue will continue to be pursued. However, the preferred solution would be increased weeks of accelerator operations and increased availability, both of which are difficult in times of tight resources. The additional operating funds required to have a significant (~25% increase) impact on overall scientific throughput are relatively modest.

We share the Panel's continuing concerns for the Laboratory's scientific leadership that result from Nathan Isgur's untimely death. The search for a new Chief Scientist and/or Head of the Theory Group is nearly complete and an offer has been made to a distinguished scientist; we are optimistic that he will accept and join the Laboratory soon. We have also followed through with the establishment of a Scientific Policy Committee to advise the Laboratory on long-range planning issues; it had its first meeting in October 2002, just after FY02, and has already proven to be a valuable forum for discussing the Lab's future, complementing the newly-formed (internal JLab) Strategic Planning Working Group.

While we recruit a new Chief Scientist, the Theory Group continues to function effectively under the leadership of current Lab staff. Franz Gross and Rocco Schiavilla have served with distinction, as was recognized by the FY02 Scientific Peer Review. The theory group has been strengthened in important ways: Dr. Yuri Semenov served as our first distinguished visiting theorist, and Stan Brodsky will be joining us in this role shortly. Furthermore, the two new theorists in Lattice QCD added to the group in FY01 were recognized by the S&T Review Panel as contributing to our growing leadership in this essential new effort. We share the Panel's enthusiasm for an expanded role for the Lab theory group in both the analysis and interpretation of the data coming from the CEBAF accelerator, and for articulation of the Lab's science program to the larger community. However, there has already been a significant expansion of the theory effort over the past few years, and additional resources will be required if we are to continue on this path.

Accelerator operations in FY02 continued to receive an outstanding rating in view of the excellent beam quality provided. Although the accelerator availability continues to be somewhat lower than desired, the combination of physics and accelerator operations again exceeded the key goal for delivered physics research operations for the year. Accelerator availability was reduced in part by a conscious decision by the Laboratory to continue to operate the machine at energies above 5 GeV (where availability is reduced by a variety of effects) because of the enhanced physics opportunities provided by the higher beam energy, and by difficult work associated with the development of the unique beam time and charge structure required for the G0 experiment. We are developing a coherent plan to enhance the accelerator availability over the next few years, and, as an interim measure, have reduced the average operating energy in the interests of enhanced availability (delaying some of the physics program that needs the higher beam energies).

The 12 GeV upgrade is clearly key to the Laboratory's future. We share the Panel's enthusiasm for this important step, and appreciate their recognition of the Laboratory's (and its User community's) effective advocacy of the upgrade. We are moving aggressively (again in concert with the User community) to further develop the physics case for the upgrade and to refine the planning for the experimental equipment necessary to carry out this exciting program. The development of the new upgrade cryomodule is of great importance for both the upgrade and the operation of the present accelerator at energies approaching 6 GeV, and the Laboratory's SRF Institute is moving forward on this effort as quickly as available funding permits.

The Accelerator R&D program was recognized as outstanding, with major achievements in polarized beam development, superconducting cavity design, and work on advanced accelerator concepts using the energy recovery technique. The Panel echoed our own confidence in the appointments of Lia Merminga and Warren Funk as the lead scientists of the Laboratory's new Center for Advanced Studies of Accelerators (CASA) and the Institute for Superconducting Radiofrequency Science and Technology (ISRST) respectively. The efforts of CASA to help with accelerator operations were also (appropriately) appreciated by the Panel.

The Panel recognized the outstanding success of the FEL program represented by the execution over the past year of a series of experiments demonstrating some of its research potential. An upgrade to the FEL, nearing completion with Navy funding, will extend its reach with extraordinary beam brightness into the UV. We are working hard with the potential User community for this facility to identify the best science that can be done using the FEL's unique beam characteristics and to make the case to funding agencies for operations support. Proper support for this program will alleviate concerns expressed about the long term impact of the FEL on the Nuclear Physics program.

Finally, we are delighted that the Panel recognizes the enthusiasm of our User community for the Lab's responsiveness to their interests and needs. We continue to listen carefully when this community speaks through both its Board of Directors and individual interactions with Lab management. We also continue to involve the User community intimately in the planning for the Lab's scientific future. The major unfilled need of the User community (beyond increased operation of the accelerator and the start of the 12 GeV upgrade) is office space. We are delighted that the CEBAF Center Addition project, which will address much of this need, is moving forward.

Looking ahead, we have found setting overall priorities for FY03 with our continuing financial constraints exceedingly difficult. The highly desirable increase represented in the President's budget request for FY03 is, at the time of this writing, still not realized as the budget for FY03 has not been passed. Despite this situation, we began FY03 with a decision to keep beam operations at the 30-week level, as we did in FY02—although we remain concerned that rising maintenance costs for aging equipment may make maintaining this level of operation difficult if the President's budget level of funding is not realized in FY03. We continue to work on enhanced capability for running the G0 experiment (with its unique high polarization, high bunch charge, and 32 nsec time structure) while simultaneously meeting any anticipated needs for low current running in Hall B and high current running in Hall A (both with standard time structure). It is also clear that additional funds, when available, will be essential to achieve higher availability simultaneously with full 6 GeV energy; a number of engineering improvements to the facility are necessitated by a combination of aging equipment and the stress of higher energy operation.

The challenges of extracting physics results from the data taken using the CLAS detector in Hall B continue to be a major focus of the Physics Division. The Lab continues to make slow progress in collaboration with Hall B Users toward our mutual goal of an international analysis effort for CLAS data. There continues to be substantial progress in the growth of the capabilities of the data analysis farm. Physics publications are now emerging from CLAS data with regularity, and many new results are nearing publication, but the effort necessary to extract all the information in the remarkable data sets accumulated by CLAS remains a challenge whose ultimate resolution will require a concerted experimental and theoretical data analysis effort. We will continue to follow these issues with care over the coming year.

In FY03, we will continue to maximize productivity through careful internal prioritization and resource allocation. While we remain unable to invest adequately in advanced accelerator research and development at our present funding level, we recognize that it will be essential to remedy this problem soon in preparation for the 12 GeV upgrade. It is also clearly of interest to the larger physics community to see the Lab's Accelerator Physics and SRF expertise strengthened with stabilized funding; we will work with DOE to plan for a long-term solution to this funding problem.

We continue to pursue the development of the scientific case for the energy upgrade by building on our earlier work, and with our evolving understanding of the underlying physics issues and the results of the ongoing research program. In FY03 we must complete an effort now in progress to develop a pre-conceptual design report for the upgrade facility so that we will be in a position to produce a fully-developed Conceptual Design Report as quickly as possible once CD-0 has been granted, and then begin the difficult job of prioritizing the scientific goals of the project.

In summary, the Lab found the concrete observations of the Science and Technology Peer Review Panel to be consistent with our own assessment of the Lab's performance. We believe this Review was very constructive, extremely useful, and accurate in its observations. The full report of the Review of Science and Technology is included in this document as Attachment A.

Principal Areas of Emphasis for FY03

- Complete the recruiting of the identified Chief Scientist candidate.
- Complete the development of G0 beam by enhancing the helicity-correlated characteristics of the beam and achieving reliable operation of G0 beam simultaneously with the delivery of "normal" beams to the other two halls.
- Continue to manage the approved experiment backlog toward a goal of ~3 years/hall.
- Continue development work toward the prototyping of a "next generation" (10 MV) cryomodule appropriate for the 12 GeV upgrade.
- Work with the light source User community to develop the science case for the FEL.
- Continue close interactions and involvement with the Nuclear Physics User community.
- Continue to work closely with the Hall B User community to optimize the physics output from the CLAS detector.
- Following CD-0 for the 12 GeV project, develop a CDR for upgrading CEBAF and its ancillary experimental areas to 12 GeV capability.
- Continue to stay within budget and on schedule in our participation with SNS.
- Participate as requested in RIA R&D.

2. Reliable Operations

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
2.0	Delivered physics research operations	150	150.0	4187.1 hours	5439.4 hours	Outstanding
2.1	Beam availability	25	25.0	70%	72.8%	Outstanding
2.2	Experimental equipment availability	25	25.0	78.5%	86.9%	Outstanding
2.3	Effectiveness of the scheduling process	25	23.2	100%	92.9%	Outstanding
2.4	Overall operations effectiveness	25	22.9	28 weeks	25.6 weeks	Outstanding
TOTAL RELIABLE OPERATIONS		250	246.1	% of assigned points = 98.4%		Outstanding

Overview

The overall performance of the accelerator and experimental equipment continues to be a major achievement. In FY02 we were able to exceed the key “bottom line” metric of delivered physics research by 29.9%. This was due to the continued high availability of the experimental equipment, the excellent availability of the accelerator this year, and making a significant effort to exceed the multiplicity – the average number of Halls simultaneously taking beam.

Operation in the first three quarters of the year was continuously at energies above 5.75 GeV, dropping back to a series of rapidly changing lower energies for the last quarter. The accelerator reliability was impressive given the high energy and simultaneously high multiplicity.

The cryomodule in SL21 had been mostly paid for with FEL funds and had been loaned to the Nuclear Physics program to help the high-energy operation. The FEL needed the cryomodule to be returned in August for their Upgrade program. A replacement module, financed by Nuclear Physics, has been constructed and successfully tested. It will be installed in CEBAF during the long maintenance period in February 2003. Until that time, we will be limiting the maximum energy to 5.5 GeV.

In FY02, a large effort was devoted to preparing the beam conditions for the G0 experiment. This required the acquisition of a Ti-Sapphire laser capable of delivering the required beam structure of 31.2 MHz (one bunch every sixteen buckets). The unusual bunch structure – the first time that CEBAF has delivered anything other than 499 MHz bunch trains – created problems for the diagnostics as well as bunch formation in the Injector. A considerable amount of effort went into beam studies for G0 and the lower operations effectiveness (25.6 weeks instead of the expected 28 weeks) resulted from this effort. By the end of the year, we had successfully demonstrated the full G0 bunch charge in the presence of beams to the other Halls – a major achievement of which we are extremely proud.

The performance measures continue to be extremely useful to the Users. However, the definition of accelerator availability (that the User be completely happy with the beam quality) is a much tighter standard than is reported by other laboratories. At the request of the DOE, we will be proposing a new metric for FY03, “Accelerator Downtime,” whose definition closely mimics that of other laboratories. We have been tracking this metric since May 2002 and the average over the last five months of FY02 was 13% - an outstanding result.

The main challenges in FY03 will be running the G0 experiment and preparing for an extremely difficult new parity experiment, HAPPEX-II.

Summary of Performance Measures

2.0 Delivered physics research operations

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
4187.1 hours	5439.4 hours	150	150	Outstanding

Discussion:

This is the fifth year we have used this metric, and we continue to believe that it represents the overall productivity of the facility and provides a firm basis for many detailed operational decisions by keeping focus on the overall physics output. As noted above, this year we exceeded our goal by 29.9% compared to 19% in FY01. This indicates the effort that has been applied to maintain, and increase a vigorous physics output from the facility. This result is all the more impressive considering the reduced budgets available for Nuclear Physics operations.

2.1 Beam availability (% of scheduled availability)

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
70%	72.8%	25	25	Outstanding

Discussion:

This is an excellent result, particularly compared to the accelerator availability of 68% in FY01. This indicates the effort that has been made to address the operational difficulties of maintaining the extremely tight tolerances required by the Users. This year, the availability was helped by long periods of running at essentially constant linac energy. This enabled us to learn how to optimize the operation of the accelerator in a way that is normally not possible with the more rapid energy changes that are more usual.

2.2 Experimental equipment availability (% of scheduled availability)

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
78.5%	86.9%	25	25	Outstanding

Discussion:

Hall availability was very good in Hall B and Hall C for FY02, 93% and 91% respectively. The Hall A program was affected by delays in the delivery of the septum magnets, and availability dropped to 78% primarily due to problems with cryotarget installation related to beam schedule adjustments. Nevertheless, several high priority experiments were completed in the Hall A, and Hall B finished the second half of the e2 run and completed the g7 experiment. A major experiment to measure the spin structure in the nucleon resonance region was carried out in Hall C, and installation of the G0 experiment was completed.

2.3 Effectiveness of the scheduling process (correlation between the published accelerator schedule and the actual schedule)

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
100%	92.9%	25	23.2	Outstanding

Discussion:

This year, there was a major failure of an underground water pipe that delayed several experiments. While we managed to reorganize the schedule to ensure that all of the experiments received the time allotted, there was nevertheless a cascade effect and several experiments started later than planned. In addition, there were problems with the cryo-targets that delayed other experiments. Even so, the maximum delay of any experiment was only 15 days.

2.4 Overall operations effectiveness (% of the planned weeks of operations for physics that is delivered)

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
28 weeks	25.6 weeks	25	22.9	Outstanding

Discussion:

As discussed above, the number of weeks of operation was less than foreseen due to two factors: the Hall A septum magnet delivery was late; and the G0 beam set-up required additional machine development time. We nevertheless exceeded the bottom line metric (PM 2.0—Delivered Physics Research Operations) by operating at a significantly higher multiplicity 2.27 instead of 2.0.

3. Production of Scientific and Technical Manpower

Overview

PM	Description	Point Value	Points Awarded	Goal	Raw Score*	Adjectival Rating
3.0a	Number of student years per year on Jefferson Lab related research or technical activities	25	25.0	1,075	1,177	Outstanding
3.0b	Total number of advanced degrees per year based on Jefferson Lab research	35	35.0	53	97	Outstanding
3.1	Number of advanced degrees per year granted by minority universities and based on Jefferson Lab research	5	5.0	6	13	Outstanding
3.2	Participation of students from groups traditionally underrepresented in physical science and engineering fields	10	9.4	35%	32%	Outstanding
TOTAL SCIENTIFIC & TECHNICAL MANPOWER		75	74.4	% of assigned points = 99.2%		Outstanding

* Components of these raw scores are weighted. See formulas used to calculate scores under discussions of performance measures on following pages.

Introduction

Jefferson Lab remains committed to increasing production of scientific and technical manpower by continuing to engage students in a broad range of research projects. Our continued success is indicated, as in previous years, by data gathered primarily with a Jefferson Lab Users Group Survey. In this year's survey, we provided respondents with an easy means of submitting a "no students" reply by promptly returning the electronic mail survey with that two-word phrase in the subject heading. As in the past, many Users replied to our initial request within hours of our sending it out. In addition to our e-mail survey, we ran a crosscheck of respondents against a list of known Users and known Jefferson Lab graduate students and consulted Laboratory staff who oversee the work of students—thus increasing statistical reliability.

In FY03, we will continue to work to assure that our database of Users and students is as comprehensive as possible; contact Users one or more times throughout the year and encourage them to track and report these data; seek to get prompt replies at the end of FY03; and ensure that Users do not overlook the production of advanced degrees that were granted earlier in the same fiscal year. Our goal in FY03 will be to keep our databases and User reports at a level that allows us to minimize follow-up contacts. We will propose some changes to the reporting of these measures that will both increase their reliability and minimize statistical fluctuations that can occur naturally in the data.

Jefferson Lab continues to be strongly involved with the development of research programs and the corresponding production of advanced degrees at Historically Black Colleges and Universities (HBCUs) and at Minority Educational Institutions (MEIs). Advanced degrees awarded based upon Lab research have increased significantly over the past few years among the seven HBCUs and MEIs with which we have memoranda of understanding (MOU) agreements. During the past fiscal year, Jefferson Lab maintained MOUs with the following HBCUs and MEIs:

- Florida International University
- Hampton University
- Norfolk State University

- North Carolina A&T
- North Carolina Central University
- New Mexico State University
- University of Texas at El Paso

Table 3.1 shows the number of advanced degrees granted by these institutions since FY97. Although the absolute numbers are small, they represent a disproportionate fraction of U.S. minority degrees awarded in physics and reflect an upward trend in the participation of minority students in physics research at Jefferson Lab. We attribute the rise in minority advanced degrees in the past fiscal year both to the time delay in completion of an advanced degree and to statistical fluctuations in small numbers such as these. Such fluctuations lend support to the decision to report a three-year average for this metric (see Suggested Changes to Performance Measures for the Future below).

Table 3.1 Advanced Degrees Awarded by Minority Institutions

	FY97	FY98	FY99	FY00	FY01	FY02
MS	3	3	3	0	1	6
PhD	1	1	1	2	3	6
Total	4	4	4	2	4	12

Principal Areas of Emphasis for FY03

- We will continue our practice of interviewing each arriving graduate student and conducting follow-up interviews with a majority of those already on site. In addition, we plan to continue to take advantage of a variety of activities organized under the Jefferson Lab Student Affairs Office to facilitate and enhance the student experience at Jefferson Lab and encourage the research effort at the Lab to become more efficient at production of trained manpower in physics and related technical fields.
- Continue to expand involvement and opportunities—intellectual, social, and recreational—for students during their tenure at Jefferson Lab. Laboratory management has supported occasional use of the Residence Facility Great Room for graduate student meetings, and we intend to set aside dedicated space for a graduate student meeting room. Regular monthly seminars are organized and presented by the students in addition to other activities that serve to welcome and integrate new students into the student community.
- Jefferson Lab has been actively producing data from the three experimental halls for several years, allowing timely progress in PhD studies. In addition, many theory graduate students are closely associated with the Laboratory. We will seek in FY03 to further publicize these unique opportunities in both the United States and throughout the world for the benefit of Users of Jefferson Lab.

Suggested Changes to Performance Measures for the Future

The statistical analysis of small numbers, as for PM 3.1, can show large percentage variations from year to year. We are pleased to note that this report for FY02 includes more accurate assessment of this particular aspect of our manpower production obtained by reporting the average over three previous years of the production of advanced degrees by minority universities. We will consider applying such a formula to PM 3.0b in the coming fiscal year.

Summary of Performance Measures

3.0a Number of student years per year on Jefferson Lab-related research or technical activities

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
1,075	1,177	25	25	Outstanding

Discussion:

This performance measure is based on a Weighted Student Involvement Index (WSII) defined by:

$WSII \text{ (Weighted Student Involvement Index)} = 1(HSS) + 2(UGS) + 4(GS)$

where HSS = High School Students, UGS = Undergraduate Students, and GS = Graduate Students

The FY02 score is $WSII = 1(10) + 2(60.5) + 4(261.5) = 1177$

3.0b Total number of advanced degrees per year based on Jefferson Lab research

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
53	97	35	35	Outstanding

Discussion:

In FY02, there were 40 advanced degrees (16 Masters and 27 PhDs) awarded that were based on Jefferson Lab research. This performance measure is based on a Composite Degree (CD) Index defined by:

$CD \text{ (Composite Degrees)} = 1(MD) + 3(PHD)$

where MD = Number of awarded Masters degrees and PHD = Number of awarded PhDs

The FY 02 CD score is: $CD = 16 + 3(27) = 97$

3.1 Number of advanced degrees per year granted by minority universities and based on Jefferson Lab research

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
6	13	5	5	Outstanding

Discussion:

In FY02, six PhDs and six master's degrees were awarded by minority institutions based on Jefferson Lab research.

The score of this performance measure is based on the following equation:

$CDM \text{ (Composite Degrees Minority)} = (MD_y + MD_{y-1} + MD_{y-2} + 3(PHD_y + PHD_{y-1} + PHD_{y-2}))/3$

where MD = Number of awarded Master's degrees and PHD = Number of awarded PhD's and y is the current year.

In FY02 six PhDs and six MS degrees were granted by minority institutions.

$FY02 \text{ CDM} = (1 \times (6 + 1 + 0) + 3 \times (6 + 3 + 2))/3 = 40/3 = 13.3$

3.2 Participation of students from groups traditionally underrepresented in physical science and engineering fields

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
35%	32%	10	9.4	Outstanding

Discussion:

The Minority Weighted Student Involvement Index for women and underrepresented minorities is:

Scoring: Determine the percent of students at all levels participating in Jefferson Lab based research and technical activities who are women or underrepresented minorities.

$$\text{Participation} = P = \left\{ \frac{\begin{array}{l} \text{Number of research students who are female,} \\ \text{African American, Hispanic, or Native American} \end{array}}{\text{Total number of research students}} \right\}$$

Students who qualify for more than one category can be counted more than once. In order to correct for this bias, each match will be treated as a distinct individual, thereby ensuring that whatever number is added to the numerator also will be added to the denominator.

For FY02, the Jefferson Lab User Liaison Office had registered a total of 192 active, badged graduate students engaged in Jefferson Lab research efforts on site. Of the 192,

40 were female,

9 were Hispanic, and

13 were African American.

Four were both female and minority and thus to be included in the denominator as described above.

$$\text{Thus, Participation } P = \frac{40 + 9 + 13}{192 + 4} = 32\%$$

4. Corporate Citizenship

Overview

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
4.0	Public participation (in effective person-hours per year)	20	20.0	80,000	95,684	Outstanding
4.1a	Public visibility: number of newspaper and magazine articles and number of radio and television programs mentioning Jefferson Lab and its science and technology	7	7.0	400	976	Outstanding
4.1b	Percentage of these citations mentioning DOE	3	3.0	100%	100%	Outstanding
4.2	Customer satisfaction	5	4.7	100%	93%	Outstanding
SUBTOTAL PUBLIC OUTREACH		35	34.7	% of assigned points = 99.1%		Outstanding
4.3	Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind)	20	20.0	2% - 2.5% of JLab ops budget	12%	Outstanding
4.4	Intellectual property generation as indicated by the annual number of: <ul style="list-style-type: none"> • Patent applications • Patents awarded • License agreements 	10	10.0	5 or 1 or 2	9 6 0	Outstanding
4.5	Benefit to partners based on the results of a mutually agreed customer survey where the customer indicates level of satisfaction on a 1 to 5 (highest) scale	10	9.4	5.0	4.7	Outstanding
SUBTOTAL TECH TRANSFER		40	39.4	% of assigned points = 98.5%		Outstanding
TOTAL CORPORATE CITIZENSHIP		75	74.1	% of assigned points = 98.8%		Outstanding

Public Outreach

Jefferson Lab's approach to strong community relations and public outreach efforts starts with top management. The Director serves on a regional economic development board called the Hampton Roads Partnership that serves a multi-city area. Other Lab staff are actively involved with and serve as members of committees and boards including: the Jefferson Center for Research and Technology Committee, the United Way of Virginia, the Cooperating Hampton Roads Organization for Minorities in Engineering, the Newport News Environmental Commission, the Newport News Chamber of Commerce Business and Education Council and the Peninsula Chamber of Commerce.

Through these interactions with city officials, state delegates, local business leaders, and the citizens of the community, the Lab communicates information to the community and obtains their feedback to both strengthen our involvement with the community and to educate and inform the public of Lab activities. The Lab has a strong sense of community, and takes its role as a responsible community member most seriously. The Lab actively encourages community members to ask questions and raise concerns, which allows the Lab to be proactive, accurate, and responsible when dealing with issues that could impact the public.

Jefferson Lab's Corporate Citizenship activities demonstrate the continued diligence of the entire staff by engaging the public in a variety of science education and awareness activities and events including: conducting tours and public outreach events—including the very popular biennial open house; giving

public lectures to civic groups; and inviting the public to the Lab for guest speaker presentations. These efforts show our commitment to the community and result in continued goodwill.

All performance measures for Public Outreach and Improved Scientific Literacy are appropriate and should be retained for FY03.

Principal Areas of Emphasis for Public Outreach in FY03:

- Community Open House for Spring 2003
- Continued emphasis of media coverage in trade and technical journals
- Continue to enhance science education activities for students and participate in the DOE Science Bowl for the State of Virginia

Technology Transfer

Consolidation of technology transfer-related functions under a Chief Technology Officer (CTO) at the end of FY02 underscores the importance of Jefferson Lab's technology transfer program and its role as an integral part of Jefferson Lab. Tech transfer plays a critical role in supporting the Lab's existing science programs (NP and FEL), developing new Lab programs responsive to DOE and national needs (SNS, RIA, LQCD), meeting tech transfer mandates, and building relationships with the community and region to support economic development. This new office is intended to position the Lab to most effectively grow, develop, and transfer its technologies.

The focus of Jefferson Lab's FY02 Technology Transfer program once again was the unique capability of the FEL as a tool for both basic and applied science, which was successfully demonstrated prior to the shutdown for FEL upgrades in November 2001. The FEL currently is being upgraded to 10 kW in the infrared range and 1 kW in the ultraviolet range with funding from the Office of Naval Research and the Air Force Research Laboratory.

Peer reviewed experiments conducted in 2001 by research groups from the College of William and Mary, Vanderbilt University, Rensselaer Polytechnic Institute, Norfolk State University, Princeton University, Goettigen University, University of Southampton, NASA Langley Research Center, LBNL, and BNL resulted in high profile publications on topics including carbon nanotubes, defects in silicon, protein dynamics, high sensitivity spectroscopy, and terahertz radiation generation. User groups won research grants from federal agencies—including DOE, NSF, NASA, and ONR—for FEL experiments.

Another success in the technology transfer program is in medical imaging, which derives from the Lab's core competency in detector technology. Two noteworthy collaborations in this area currently underway are: (1) The Lab continues its work with a small business partner and research hospitals to further the development of a scintimammography medical imaging device that has demonstrated improvements in early breast cancer detection. (2) The Lab is collaborating with Oak Ridge National Laboratory and the Johns Hopkins University to develop instrumentation that will allow bio-medical researchers to study mice with nuclear medicine imaging techniques while they are awake and unrestrained during imaging. This novel technology should offer neural scientists the opportunity to use conscious mice to study neural processes in real-time and over an extended period. In addition, the Lab has initiated a partnership with the University of Florida and the University of South Florida to develop a next-generation medical imaging device, an effort funded through the US Army.

The Lab continues its active role in local, regional, and state organizations promoting economic development through partnerships and other technology transfer activities. The Lab Director and the Chief Technology Officer serve in organizations such as the Hampton Roads Partnership, the Hampton Roads Technology Council, the Hampton Roads Research Partnership, the Peninsula Alliance for Economic Development, the Virginia Research and Technology Advisory Commission, and the Newport News Economic Development Authority.

The Lab's performance generating, protecting, and transferring intellectual property continues to rate Outstanding. Nine patent applications were filed, and six patents were awarded FY02. The Lab also continues to participate in the DOE's SBIR program with three currently active partnerships. Four CRADAs were underway in FY02. The total amount of "funds in" to Jefferson Lab as a result of Technology Transfer activities is about \$9.1M—12% of Jefferson Lab's annual operating budget.

Performance measures should remain unchanged for FY02.

Principal areas of emphasis for Technology Transfer in FY03:

- Commission the 10 kW IR FEL Upgrade.
- Re-start the FEL User program after FEL commissioning.
- Continue to nurture and grow medical imaging technology.
- Respond to homeland security requests with Jefferson Lab technologies as appropriate.

Summary of Performance Measures

Corporate Citizenship – Public Outreach

4.0 Public participation (in effective person-hours per year):

[Number of student hours + number of public hours + 10 * number of teacher hours] per year, including visits, external public talks, science series, open house, BEAMS, etc.

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
80,000	95,684	20	20	Outstanding

* As agreed upon in the Performance Evaluation Plan, this goal is reduced from 105,000 to 80,000 due to lack of DOE funding for the TRAC program.

Discussion:

Contributions to the Commonwealth and the nation's science education and literacy are being made by Jefferson Lab, as evidenced in Public Participation metrics. The centerpiece is the Lab's K-12 science education program Becoming Enthusiastic About Math and Science, most often referred to as BEAMS. The BEAMS program serves all sixth, seventh, and eighth grade students and teachers from two local schools with the most "at-risk" students. Students and teachers visit Jefferson Lab for two to five days of hands-on math and science activities conducted by Jefferson Lab scientists, engineers, and technicians.

During the summer of 2002, 32 middle school science teachers participated in the Lab's Physics Enrichment for Science Teachers (PEST) program, a four-week mini-course in physics, taught by physics professionals including staff scientists. Additional activities in science education include classroom visits; Physics Fest days (field trips to the Lab); supporting science and high technology high school and college internships; participating as local and regional science fair judges; spring and fall

Science Series presentations; and, for the first time in five years, participation in the Department of Energy's Science Bowl. The students from the Virginia team went on to win the national championship. During FY02, Jefferson Lab served more than 9,000 students. In addition, the Lab provided in-service activities, which include access to the Lab's expertise and equipment, to more than 1,000 teachers.

4.1(a) Public Visibility "V": Number of newspaper and magazine articles and number of radio and television programs mentioning Jefferson Lab and its science or technology

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
400	976	7	7	Outstanding

4.1(b) DOE Citation: Percent of the articles featuring Jefferson Lab that mention DOE

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
100%	100%	3	3	Outstanding

Discussion of 4.1a-b:

Public visibility and awareness of the Department of Energy and Jefferson Lab continues to be reinforced through the use of the media and interactions with the public. Local and regional news articles covered events related to Jefferson Lab including the Free-Electron Laser, breast cancer imaging technology, public lectures, and our science program. On the national front, the Lab's physics was featured in *USA Today*, *Science News* and *Physics Today*. The public's use of the Internet continues to increase our visibility as more newspapers take advantage of publishing on-line versions of their articles. This year the Department of Energy sponsored a Lab wide membership to a science journalist Web site sponsored by the American Association for the Advancement of Science called EUREALERT!. This Web site gave Jefferson Lab news much more exposure nationally and internationally and is reflected in the scores.

4.2 Customer Satisfaction

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
100%	93%	5	4.7	Outstanding

Discussion:

The Lab's FY02 activities included sponsoring a booth in the Technology Center at the Virginia State Fair. The State Fair is the most labor-intensive Public Affairs activity the Lab undertakes. The booth was staffed by Lab volunteers 12 hours a day for 11 consecutive days. The Lab conducted over 30 tours—attended by over 1,000—for industry and government officials and professional organizations, and provided speakers for civic groups as requested. Customer satisfaction ratings of public tours and student interactions is outstanding, with the negative comments most often being expressions of disappointment when specific areas of the accelerator site are closed for tours due to running experiments.

Corporate Citizenship – Technology Transfer

4.3 Non-DOE investment in Jefferson Lab initiatives (including direct dollars, manpower costs, and contributions in-kind)

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
2% - 2.5% ops (\$M - \$M)	12%	20	20	Outstanding

Discussion:

Various technology transfer projects totaled \$9.06MM, which is approximately 12% of the Lab's \$75MM FY02 operating budget.

Funding Sources	Contributions or Billed Costs
CRADA Varian/ODU/JLab	\$ 116,400
CRADA Ceradyne	6,900
FEL Interagency Agreement/AFRL	3,298,400
Welfare to Work Agreement/NNHRA	7,900
FEL Sharing/Virginia	591,200
FEL Interagency Agreement 1/USN	1,149,200
FEL Interagency Agreement 2/USN	3,565,300
Physics Interagency Agreement WFO/NIH	9,600
FEL Interagency Agreement/DOD JTO	193,500
G0 WFO/University of Illinois	107,900
Physics WFO/PSI	1,100
FEL Interagency Agreement/NASA	17,500
Total	\$ 9,064,900

4.4 Intellectual property generation as indicated by the annual number of:

- (a) patent applications
- (b) patents awarded
- (c) license agreements

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
5 patent applications OR	9	10	10	Outstanding
1 patent awarded OR	6			
2 license agreements	0			

Discussion:

Jefferson Lab's production of original technology developments continued in FY02:

- 9 patent applications were executed
- 6 patents were awarded to the Lab and inventors

4.5 Benefit to partners based on the results of a mutually agreed upon customer survey where the customer indicates level of satisfaction on a 1 (lowest) to 5 (highest) scale.

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
5.0	4.7	10	9.4	Outstanding

Discussion

The general response from the technology transfer partner surveys is very positive. Jefferson Lab's working relationships with partners remains healthy, because the exchange of information and ideas is bi-directional.

5. Environment, Health and Safety

Overview

5. Quality Performance in Environment, Health, and Safety						
PM	Description	Point Value	Pts Awd	Goal	Raw Score	Adjectival Rating
5.0a	Occupational Injury Cost Index	35	27.8	50% better than DOE lab average	2.1 times the DOE lab average	Good
5.0b	Environmental Exceedances	20	20	4 times as good as the DOE complex average	No exceedances	Outstanding
5.1	Lost Work Day Case Rate	15	13.4	50% better than DOE lab average	1.2 times the DOE lab average	Excellent
5.2a	Reportable Radiation Exposures	4	4	Satisfactory ALARA program; no exposures >80% of ORPS threshold	Better than satisfactory program; no exposures	Outstanding
5.2b	Hazardous Substance Exposures	4	4	No exposures above OSHA action level	No exposures	Outstanding
5.3	Solid Waste Recycled	6	6	Exceed FY94 baseline ratio by 44%	Exceeded baseline by more than 44%	Outstanding
5.4a	Radioactive Waste Generation	4	3.8	>90% of radioactive waste generated for useful purposes	95%	Outstanding
5.4b	Hazardous Waste Generation	4	4	Produce <.25 of maximum useful hazardous waste	.06	Outstanding
5.5	Peer Review of the Radiation Control Program	4	3.8	Appropriate program = 100	94%	Outstanding
5.6	"Highly Protected Risk" Rating for High-Value Facilities	4	3.4	All facilities meet highly protected risk designation	93%	Excellent
TOTAL EH&S		100	90.2	% of Assigned Points = 90.2%		Outstanding

Introduction

Jefferson Lab's Environment, Health, & Safety (EH&S) program is fully integrated, effective, and appropriate for our risks. A basic premise of Jefferson Lab's EH&S program and the Lab's Integrated Safety Management (ISM) System Plan is the commitment that line management bears primary responsibility for EH&S issues in its areas of operation. Consequently, the EH&S effort is accomplished programmatically by line managers who receive advisory input from EH&S specialists assigned throughout the organization. (EH&S specialists also serve as a functional resource for the Laboratory as a whole.) The absence of serious injuries, environmental exceedances, overexposures to hazardous substances, and overexposures to radiation is the best indication of EH&S performance for FY02.

EH&S was covered in two major Lab reviews: the Office of Science Operations Review and the Institutional Management Review. The Office of Science Operations Review concluded that "Jefferson Lab has a mature integrated and cost effective safety program." In addition, the biennial Radiation Control Peer Review was conducted in August 2002. The Peer Review Panel concluded that "the radiological control program at JLab is an outstanding one."

Major EH&S related reports submitted during the year include the ES&H Budget Formulation Submission (formerly the ES&H Management Plan) and the annual Site Environmental Report.

Progress continued with the Lab's integration of the DOE worker radiation protection rulemaking under the PAAA. There were no FY02 radiological events meeting PAAA reporting criteria. The DOE Headquarters Office of PAAA Enforcement closed the report of the August 2001 Test Lab unposted high radiation area event in May 2002 without any enforcement action.

FY02 EH&S Highlights

- An extensive internal FY02 review of ISM at Jefferson Lab concluded that a solid system for implementing ISM is in place, and made several recommendations, most dealing with continuous improvement opportunities.
- Jefferson Lab staff, along with Site Office personnel, participated in both the Task Force and the Planning Team DOE created in response to Congressional direction to move ahead with external regulation of worker and nuclear safety at its 10 Science labs. DOE has named Jefferson Lab one of the first four labs to receive Federal OSHA and radiation protection (either NRC or individual states) compliance audits in FY03.
- As part of the larger Lab-wide reorganization, the Office of Technical Performance (OTP) was renamed the Office of Assessment (OA). Dr. Ronald M. Sundelin, who had headed OTP since 1991, retired in January 2002; Dr. James J. Murphy is now the Director for the OA.
- In April 2002, the Accelerator Division combined its EH&S activities, including radiation control, into an EH&S Department headed by Dr. Charles E. Reece who also serves as a line manager in the Institute for SRF.

Summary of Performance Measures

5.0a Cost Index

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
50% better than DOE lab	2.1 times DOE lab average	35	27.8	Good

Discussion:

SURA staff overall accident experience compared unfavorably to that of the other DOE research laboratories in FY02. The Lab result was 17.7, versus a DOE research laboratory average result of 8.5. A single January 2002 lifting injury resulted in a total of 180 lost or restricted workdays in FY02. The Jefferson Lab FY02 Cost Index would have been 5.3 without this single injury. This value would have been substantially lower than the DOE research laboratory Cost Index average of 8.5. Increased ergonomic work practice evaluations by industrial hygiene and Medical Services staff were conducted during FY02.

5.0b Environmental Exceedances

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
4 times as good as the DOE complex average	No exceedances	20	20	Outstanding

Discussion:

Jefferson Lab did not receive a significant environment permit NOV (Notice of Violation) during FY02. A March 2002 minor administrative NOV for late routine results reporting did not incur point penalties.

5.1 SURA lost workday case rate

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
50% better than DOE lab average	1.2 times the DOE lab average	15	13.4	Excellent

Discussion:

This FY02 measure for injuries resulting in one or more lost/restricted workdays (1.2) was higher than the average (1.0) for all DOE research laboratories. Additional management attention has been focused on reducing injuries through improved work planning and increased attention to occupational injury case management by Jefferson Lab Medical Services staff.

5.2a Reportable radiation exposures

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
Satisfactory ALARA program; no exposures >80% of ORPS threshold	Better than satisfactory program; no exposures	4	4	Outstanding

Discussion:

There were no FY02 Jefferson Lab radiation exposures requiring special reporting under the DOE occurrence reporting thresholds, and the ALARA program is rated better than satisfactory.

5.2b Hazardous substance exposure

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
No exposures above OSHA action level	No exposures	4	4	Outstanding

Discussion:

There were no FY02 Jefferson Lab exposures to hazardous substances or chemicals requiring special reporting under either OSHA limits or DOE occurrence reporting thresholds.

5.3 Solid waste recycled

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
Exceed FY94 baseline ratio by 44%	Exceeded baseline by more than 44%	6	6	Outstanding

Discussion:

Effective recycling efforts by the Plant Engineering Department, along with broad staff support for recycling, resulted in this strong FY02 showing. The performance goal for this metric was increased from 15% to 44% during FY 99. FY02 total recycling amount was 40.6 tons, an increase from the FY01 total of 35.6 tons.

5.4a Ratio of radioactive waste produced to that produced including by unintentional processes

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
>90% of radioactive waste generated for useful purposes	95%	4	4	Outstanding

Discussion:

There were no Jefferson Lab radioactive waste shipments in FY02. Operability Group and Radiation Control staff members collect information for this area. A score of 95% is assigned for years in which no radioactive waste shipments are made.

5.4b Ratio of hazardous waste generated to that which would have been produced without countermeasures

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
Produce <0.25 of maximum useful hazardous waste	.06	4	4	Outstanding

Discussion:

This performance objective continued to be emphasized during FY02 by hazardous waste and division EH&S staff resulting in an “Outstanding” rating.

5.5 Radiation Control Peer Review (FY 02)

Goal	Raw Score	Point Value	Points	Adjectival Rating
Appropriate program = 100	94%	4	3.8	Outstanding

Discussion:

The Radiation Control Peer Review was held August 26-28, 2002. The Peer Review concept has worked well for the important area of radiation control. A copy of the Radiation Control Peer Review Report is included in the document as Attachment B. The FY02 score was 88 (converts to a score of 94% of available points, Outstanding) reflecting continued improvement since the 2000 peer review score of 85.

5.6 “Highly Protected Risk” rating for high-value facilities

Goal	Raw Score	Point Value	Points	Adjectival Rating
All facilities meet highly protected risk designation	93%	4	3.4	Excellent

Discussion:

The August 2002 evaluation review of Jefferson Lab high-value facilities received a score of 93 or 86% of available points. SURA’s fire and property insurance carrier conducted the review. Hall A remediation activities will be completed in FY03. This will address all existing issues. During FY01, this objective was revised to have the reviews conducted biennially rather than on an annual basis. The next evaluation will be conducted in FY04.

6. Quality of Business and Administrative Practices

Overview

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.0	Peer Review	70	66.5	100%	95%	Outstanding
6.1	% of overrun on all projects > \$100K	1	1	≤ 8%	0%	Outstanding
6.2	Variance of scheduled completion time for projects > \$100K	1	1	≤ 1.10	.6	Outstanding
6.3	% of scheduled preventive maintenance tasks completed by their scheduled due dates	2	2	≥ 94%	96.1%	Outstanding
6.4	Average % of all open corrective maintenance tasks that have been open > 3 months	2	2	≤ 10%	6.5%	Outstanding
	SUBTOTAL FACILITIES (6.1 - 6.4)	6	6	% of assigned pts = 100%		Outstanding
6.5a	% of value of property located during the inventory cycle: Capital Property	N/A	N/A	N/A	N/A	N/A
6.5b	% of value of property located during the inventory cycle: Sensitive Property	3	3	> 99%	99.2%	Outstanding
6.5c	% of value of property located during the inventory cycle: Stores Property	1	1	> 99%	99.7%	Outstanding
6.6	% of values of Inventory Stores reduced	1	.9	≥ 10%	10.4%	Excellent
	SUBTOTAL PROPERTY (6.5 – 6.6)	5	4.9	% of assigned pts = 98%		Outstanding
6.7	Number of CAS violations	1	1	0 violations	0 violations	Outstanding
6.8	Dollar % of invoices deemed unallowable	1	1	< 1%	.37%	Outstanding
6.9	% of vendor invoices paid with discounts lost	1	1	< 1%	.01%	Outstanding
6.10	% of annual actual cost variance from budget for each overhead pool	1	1	< 3%	1.8%	Outstanding
6.11	Number of occurrences that Cost Management Report had to be resubmitted to Contracting Officer – DOE Site Office	1	1	0	0	Outstanding
6.12	Number of audit errors in travel expense reports	1	1	< 2%	0	Outstanding
	SUBTOTAL FINANCE (6.7 – 6.12)	6	6	% of assigned pts = 100%		Outstanding
6.13	Average procurement cycle time	3	3	< 11 days	5.7 days	Outstanding
6.14	% of total available purchasing dollars awarded to: small business concerns, small women-owned business concerns, and small disadvantage business concerns	SM 1 WO1 SD 1	1 1 1	≥ 50% ≥ 6% ≥ 6%	57.4% 12.5% 9.5%	Outstanding
	SUBTOTAL PROCUREMENT (6.13 – 6.14)	6	6	% of assigned pts = 100%		Outstanding

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
6.15a	% of action oriented diversity commitments as established in the Affirmative Action Plan	1	1	≥ 90%	100%	Outstanding
6.15b	Representation of protected classes within each EEO-1 category	1	.9	100% maintained	95%	Outstanding
6.16	Sustainable EEOC charges	1	1	0 charges	0 charges	Outstanding
6.17	Compensation positions aligned with market practices	1	1	± 3% of market average	- 2%	Outstanding
6.18	% of 3-year rolling average of annual increases in premium cost relative to market	1	.8	≥ 5% below market data	.8% above market data	Excellent
6.19	% of current year's papers written by JLab staff or Users placed online	1	1	≥ 97%	100%	Outstanding
	SUBTOTAL HUMAN RESOURCES AND SERVICES (6.15 – 6.18)	6	5.7	% of assigned pts = 95%		Outstanding
6.20	Number of times JLab computer systems were compromised or used to attack other systems	1	1	≤ 1	1	Outstanding
	SUBTOTAL CYBER SECURITY (6.20)	1	1	% of assigned pts = 100%		Outstanding
TOTAL QUALITY OF BUSINESS AND ADMIN PRACTICES		100	96.1	% of assigned pts = 96.1%		Outstanding

Division Assessment

The Administration Division comprises the Division Office (including QA and Legal Counsel), Plant Engineering, Business Services, Division Environmental Health and Safety (including Medical Services), and Human Resources and Services. The primary vehicle for assessing the Division's performance for FY02 was the annual Peer Review of business and administrative practices. The FY02 Peer Review Panel was highly complimentary of the Administrative Division, awarding an "Outstanding" rating for overall performance. Noteworthy achievements and practices cited include: the Workers' Compensation case management system; expansion of e-commerce; improvements to the travel system; implementation of Web-based training; HR&S employee outreach efforts; and Plant Engineering's implementation of the Central Alarm Notification System (CANS).

Secondary indicators, as defined in Appendix B, assess performance in specific areas and provide a more in-depth evaluation of each of the Administrative Division departments. The results of the FY02 Appendix B metrics are consistent with, and supportive of, the findings of the Peer Review Panel. These results and any accompanying narrative follow departmental overviews below.

At the beginning of FY03, Jefferson Lab implemented a revised organizational structure which impacts the Administration Division via the following changes: realignment of the Financial portion of Business Services to the newly formed Chief Financial Officer (CFO) group; realignment of Information Services (Library and Records Management) to the newly formed Chief Information Officer (CIO) group; movement of the Lab's Self Assessment (Performance Report) to the Office of Assessment (previously the Office of Technical Performance); and alignment of Legal Counsel as a direct report to the Laboratory Director.

Plant Engineering

Plant Engineering continued its aggressive and effective outsourcing program. Contracted services include: security guard force, refuse collection and disposal, and pest control, as well as maintenance of grounds and mechanical, electrical (high and low voltage), fire protection, and HVAC controls systems. The majority of contracted services are awarded through firm-fixed-priced contracts, and the Lab's Plant Engineering staff monitor the outsourced services to ensure quality. In a given year, over 50,000 routine maintenance checks are performed on mechanical and electrical systems.

In FY02, new subcontracts for grounds maintenance, fire protection and electrical services went into effect or were awarded. The mechanical system alarms have been augmented by the CANS system for fire protection and security. Continuous monitoring of these systems has offered the customers in Physics and Accelerator Divisions high quality management of maintenance problems. In some cases, problems were identified and resolved before customers were aware that the mechanical support equipment needed work. Approximately 150 calls, the same as last year's volume, were handled in this manner. All of these new subcontracts include performance incentives to increase the subcontractor's motivation to perform at a high quality level. The new grounds maintenance subcontract increased accountability and ownership for the subcontractor. Although the electrical services subcontract has not yet started, we expect savings to accrue with this larger scope contract.

In accordance with DOE's Federal Information Management System (FIMS) Initiative, Plant Engineering reviewed and populated over 151 real property data items for accuracy and complete information. This effort included the following data collection and/or verification tasks:

- a complete review of the finance data to validate Initial Acquisition and Capital Improvement Costs
- development of AutoCAD drawings for each facility and polylining of the drawings to establish net occupiable square footage and to validate gross square footage for each facility
- identification of Occupants by Type per Facility
- review of Facility Asset, Design and Use Codes, and Seismic and UFAS
- identification and documentation of meters
- development of quantities for the utility distribution systems listed under Other Structures and Facilities
- correction of Land Data
- verification and update of Leased Facility Information

In addition to this initiative, all Replacement Plant Values for facilities were reviewed and updated, and maintenance costs (required, actual, and deferred) were established and entered by due dates.

Plant Engineering completed the first round of inspections under the comprehensive Facility Condition Assessment Program developed last year.

In addition to the daily maintenance requirements, in-house staff managed the design and construction of various projects that reduced backlogged maintenance by \$0.8 million in FY02 and increased the capability/efficiency of Lab facilities. Major projects completed include: Re-roofing of CEBAF Center; road and drainage repair at the Test Lab; reconfiguration of space in VARC; Computer Center expansion; installation of the end station refrigerator cooling tower and a heat exchanger for the LCW system at the South Access Building; and various SNS LCW projects. Additionally, the financing arrangement with Bonneville Power Administration was finalized, and the Energy Savings projects of Test Lab/Central Chiller, the VARC HVAC system, CEBAF HVAC controls, and Lighting

Renovations are currently at various stages of construction. Plant Engineering also developed the solution to a complex problem with the LCW system.

Anticipating the increase in Facilities-related projects, Plant Engineering teamed with Human Resources to sponsor a two day on-site MS Project training course. The course was designed to develop or enhance Project Management skills for technical staff.

Conceptual Planning continued on CEBAF Center Additions, Phase I. The Acquisition Plan, Conceptual Design Report, and Preliminary Project Execution Plan were developed and were approved by DOE with the issuance of CD-1 in August 2002. The environmental assessment for five future projects was completed in July 2002. As part of the environmental assessment, Plant Engineering initiated a site-wide Storm Drainage Study to identify maintenance project requirements and develop a master plan for storm water management associated with future developments. Anticipated completion of this Study is December 2002.

Jefferson Lab continues to maintain a flexible response consistent with the nationwide Homeland Security Advisory System. All Lab staff received the annual integrated security management awareness briefings, and Plant Engineering staff quickly implemented security enhancements required by DOE in response to the September 11, 2002 anniversary of the terrorist attacks in the United States. Cost-effective solutions were put in place to enhance security for the expected period of heightened security.

Property management maintained a low property loss rate, recycled a total of 50,550 pounds of scrap metal, donated a total of \$48,352 of surplus property to eleven schools, and re-utilized \$19,000 of equipment in-house in lieu of disposal. Additionally, there was a transfer of \$452,201 of equipment from other labs. There was a total of \$563,393 of equipment plus an additional \$1,056,489 in ADP scrap disposed of through GSA, EADS, and other agencies, as well as transfers of \$9,087 of equipment to other Federal agencies for reutilization.

Assessment of Plant Engineering Performance Measures

Plant Engineering has recommended changes to its performance measures for FY03 and beyond. We suggest (1) replacing the language of the current measure PM 6.4 (corrective maintenance) with language to address the percent of planned facility condition assessments completed, and (2) adding a metric to measure the completion of planned indirect projects.

The metric for corrective maintenance currently includes only a portion of electrical and mechanical work and excludes all building corrective maintenance. The impact of not completing necessary corrective maintenance (as previously defined) already is evidenced in the run time performance of the accelerator (PM 2.1). The recommended new metric will measure timely completion of facility condition assessments—the purpose of which is to identify maintenance issues. These maintenance issues can be resolved by either a minor work request or a larger indirect project. It is recommended that another new metric be added to measure completion of planned indirect projects identified through the aforementioned facility condition assessments.

Business Services

FY02 was another very productive year for the Business Services Department. Accomplishments included “Outstanding” ratings on all contract Performance Measures and the Administrative Peer

Review; initial integration of the HRIS system into the Costpoint System; attainment of all small business program goals; addition of web-based ordering and tracking of compressed gases; development and implementation of a database to provide additional information and support to the Lab's Technology Transfer efforts; and the award of cafeteria and copier services subcontracts, two major procurements with site-wide impact. The innovative approach used for the copier services subcontract was recognized by DOE as a Best Practices Award recipient, one of only four such awards throughout the DOE Contractors.

Process improvements were made to enhance service and efficiency and continue to support the expansion/implementation of various online business systems. They included the institution of draw-down purchase orders for contract labor, eliminating the need for duplicate data entry and streamlining the payment process; enhanced financial data availability via Web Reports; improved vendor performance tracking with the new Vendor Performance Database; and full utilization of the online travel request system.

Jefferson Lab's recent reorganization includes the creation of a Chief Financial Officer (CFO) group. This group is responsible for the financial systems and processes previously located in Business Services, as well as the Budget function previously housed in the Director's Office. Further, the CFO's Office will provide additional budget support, analysis, and guidance to the entire Laboratory. Part of the group's focus will be the development of new budgeting tools and transitioning the Laboratory to status as an Integrated Contractor. Business Services staff will continue to focus on systems and processes associated with Technology Transfer, contracting and purchasing, the Small Business Program, and the green procurement program.

Administration Division Environment, Health, and Safety

Focus on subcontractor EH&S performance continued, with Workers' Compensation experience ratings included in the criteria used in best-value subcontract awards. A vendor's Workers' Compensation experience rating has proven to be an excellent measure of its commitment to safety.

SURA/Jefferson Lab's own Workers' Compensation experience rating continued its recent favorable downward trend. It is currently 0.62; "par" for our peer group is 1.00. This is indicative of a sustained pattern of injury prevention by the entire Lab and good case-management practices by Medical Services.

An on-site review of fire-protection, security, and business-continuity (i.e. disaster-recovery) practices for the VARC and Residence Facility, conducted by our property insurance carrier, resulted in complimentary remarks for the state of our fire protection systems and associated documentation. The reviewer also was impressed with our emergency management and disaster-recovery plans and resources. Our fire protection consultant from Marsh, USA conducted our biennial highly protected risk (HPR) evaluation. Quite a few previous additional recommendations (items that do not have immediate implications for HPR status) were noted as corrected or closed. Some new ones were added. The overall HPR "score" remains unchanged at 93% or "Excellent."

The Administration Division EH&S Officer served as a member of the Accelerator Safety Task Force. This group was convened by S. Chattopadhyay (Accelerator Division Associate Director) to help him identify key processes that impact the safety culture and performance of the Accelerator division and to make recommendations for improving those processes.

In the Medical Services area, the increase in physician hours from 12 to 20 per week was successful in reducing the long-standing backlog of mandatory medical monitoring. In March 2001, the average case backlog was 31%; currently it is 9.1%. Further, the increased physician hours allowed the resumption of follow-up optional medical monitoring sooner than originally anticipated.

Medical Services has added a new service to its wellness-promotion and healthy employee focus. Employees who are receiving allergy-desensitization injections (“allergy shots”) may now have these administered in Medical Services with the concurrence of their personal physician. This will have several benefits to employees, including (a) it will be easier for them to keep to the prescribed injection schedule, and (b) their time lost from work to visit a physician’s office will be significantly reduced.

Medical Services assumed the responsibility for CPR training, eliminating the need for a subcontracted trainer. There has been significant increased interest around the Lab in becoming proficient and certified in CPR—resulting in at least a two-fold increase in CPR training. Part of this renewed interest likely is related to the placement of automatic external defibrillators (AEDs) on site. Medical Services is managing the Lab’s AED program in accordance with State and professional standards.

Other training—including SAF100, the Lab’s EH&S introductory course (required of all who work here or visit without escort) and SAF800 (general employee radiation training or GERT)—is now available in a computer-based, self-paced format. This allows much greater flexibility in accommodating training needs, especially for subcontractors and Users.

Human Resources and Services

Human Resources and Services (HR&S), encompassing Staff Services, Information Resources and the more traditional HR functions of Employment, Compensation and Benefits, Employee Relations, and Training and Performance, was both stable and highly productive during FY02. The HR&S Director built and maintained strong working relationships with the Laboratory Director and Associate Directors, significantly enhancing their understanding and support of critical human resource issues. Accomplishments of note during FY02 include:

- Despite HR staff losses due to relocation and retirement, at year-end only one vacancy remained, and it was in the final stage of selection. Through a combination of new hires, reorganization, and formalized cross-training, HR department staff are moving toward more generalist roles, where they will be versed in at least one additional occupational function. For example, the Employment Administrator position has been re-titled “HR Division Administrator,” and the incumbent will serve as liaison to staff in assigned division(s) for all human resource functions. Broadening the knowledge base of all HR staff allows us to better serve our customers throughout the Lab.
- Project Management training was arranged for Plant Engineering staff for the purpose of standardizing project management and closeout procedures.
- In anticipation of a major revision to the Lab’s Performance Management System in FY03, we initiated and completed the review and Associate Director approval of all staff performance objectives.
- Customization of the newly acquired RecruitMax Applicant Tracking System was completed in 2002, tailoring the off-the-shelf software package to more closely match the Lab’s employment processes. The new system will “go live” on October 1, 2002.
- At year-end, we were in the final stages of implementing the Costpoint Human Resources Information System (HRIS), which will improve the information retention and retrieval process and

integrate with the Costpoint Payroll System already in place. The existing dBase system will be discontinued in the fall of 2002.

- We developed a new program to provide medical and dental insurance coverage for employees on long-term disability. The program was reviewed and approved by Director's Council and has been implemented.
- We received DOE authorization for a special market adjustment fund for lower-level scientists and subsequently implemented a market-based salary adjustment for physicists.
- Tech notes and CLAS notes continue to be loaded onto the Lab's intranet.
- The implementation of the Vital Records Program was begun.
- We continued the migration of EH&S and other courses to computer and Web-based training.
- Residence Facility operations and staff were reviewed and realigned to better serve the needs of customers.

Future Administration Division Improvement Goals and Initiatives

- Complete construction of energy savings modifications to buildings using financing arranged by Bonneville Power Administration.
- Finalize the construction general condition specifications for projects over \$100K and develop a second set for projects under \$100K to establish uniformity among all projects issued by Plant Engineering.
- Complete migration to Integrated Security Management by updating policy, procedures, and training systems.
- Continue efforts to locate and award contracts to HUB Zone firms.
- Expand electronic commerce to include instrumentation measurement equipment and supplies.
- Develop secondary level support for Procurement databases to ensure full accessibility.
- Explore options for obtaining or developing on-line travel expense reporting and electronic signature systems.
- Review electronic timesheet system options for possible upgrade.
- Become fully integrated into the DOE's Financial Information System (Office of the CFO is responsible for the goal).
- Complete the integration of the Costpoint Payroll and Human Resources Information Systems.
- Identify candidates for streamlining vendor payments, with a focus on invoice-less payments to e-commerce vendors.
- Plan and implement approved revisions to the Lab's Performance Management System.
- Develop and implement a Lab-wide employee recognition program.
- Continue to provide new training to include courses on basic electrical safety, supervisor "nuts & bolts" and security awareness.
- Continue the implementation of the Vital Records Program.

Summary of Performance Measures

6.0 Peer Review

Area Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
Division Office (Division Management, Legal, Internal Audit, Quality Assurance, EH&S, MIS)	10	9.5	100%	95%	Outstanding
Business Services (Finance, Procurement)	20	19.5	100%	97.5%	Outstanding
Human Resources & Services (includes Staff Services and Information Resources)	20	18.5	100%	92.5%	Outstanding
Plant Engineering	20	19.5	100%	95%	Outstanding
SUBTOTAL PEER REVIEW	70	66.5	% of assigned pts = 95%		Outstanding

Discussion

The Administration Peer Review, a performance metric in the SURA/DOE Contract, is conducted as a two day, on-site panel review. While each department of the Administration Division is included in the review, one department is selected for more in-depth assessment and is considered the “focus group.” In FY02, Plant Engineering was the focus group. As in past years, the FY02 Panel of six members included representatives from the scientific community, the DOE, other DOE Laboratories, and a representative with expertise in the focus group area.

The Review Panel is charged to determine the quality of standards adopted and pursued; evaluate the effectiveness of all units to carry out their responsibilities in a cost-effective, efficient and responsive manner; identify business units that merit special recognition; and determine aspects of any department’s performance that warrant attention for improvement.

The Review is a combination of presentations by Lab staff and interviews with Associate Directors, Division Administrators and Managers, and DOE Site Office staff. Supporting documentation, such as each subject department’s Line Self Assessment, also is made available to the Panel. The scores for FY02 are indicated in the table above, and the full report of the FY02 Administrative Peer Review Panel is attached (see Attachment C). The cumulative score of 66.5 (95.0% of available points) correlates to an adjectival rating of “Outstanding.”

The Administrative Peer Review remains the key indicator of the quality of the Lab’s business and administrative practices. However, with the recent reorganization mentioned earlier in this section, the schedule and format are not yet established for FY03.

FACILITIES MANAGEMENT

6.1 Percentage of overrun on all projects greater than \$100K

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≤ 8%	0%	1	1	Outstanding

6.2 Variance of scheduled completion time for projects greater than \$100K

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≤ 1.10	.6	1	1	Outstanding

Discussion of 6.1 and 6.2

Plant Engineering has completed one project over \$100K to date this fiscal year. The project re-roofed CEBAF Center with a polyurethane foam and silicone coating roofing system. The final contract value was \$122K. There was one change order—to install an air conditioning support frame—but the cost was offset by the Lab’s providing a crane to remove the stacked pavers from the roof to ground level, resulting in a zero net change in the contract amount. The contract for this project had a 110 day duration. Due largely to an unseasonably dry fall, no rain fell for the entire duration of the project, and construction was completed in 65 days.

The following projects are anticipated for FY03:

- End Station Generator
- Renovate VARC HVAC
- Central Chiller
- Test Lab & EEL Lighting Modifications
- CEBAF Center Automatic Controls

The percentage of overrun and variance in schedule metrics should be retained for FY03.

6.3 Percentage of scheduled preventive maintenance tasks completed by their scheduled due dates

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≥ 94%	96.1%	2	2	Outstanding

6.4 Average percentage of all open corrective maintenance tasks that have been open for greater than 3 months

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≤ 10%	6.5%	2	2	Outstanding

Discussion of 6.3 and 6.4

The above metrics measure the effectiveness of our fire detection/protection, electrical, and mechanical equipment Preventative Maintenance (PM) and Corrective Maintenance (CM) programs. The PM program, along with contracted response to trouble calls, has kept accelerator outages caused by failure of one of these systems low. The PM program is modified as necessary based on equipment trouble or failure rate.

We have proposed that these measures be modified for FY03 and beyond. Preventative Maintenance will include a broader range of tasks (all PM designated tasks). The open corrective maintenance metric should be suspended until a new automated system is obtained and implemented to track all open corrective maintenance tasks, at which time the metric should be revisited. Two additional metrics are recommended: one to measure the scheduled completion of facility condition assessments and a second for the completion of planned indirect projects. These metrics are explained fully in FY03 Appendix B, the Performance Evaluation Plan.

PROPERTY MANAGEMENT AND PROTECTION

6.5a. Percentage of value of property not located during the inventory cycle for each of the inventories conducted -- Capital Property(odd years only)

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
N/A	N/A	N/A	N/A	N/A

6.5b. Percentage of value of property located during the inventory cycle for each of the inventories conducted -- Sensitive Property

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
> 99%	99.2%	3	3	Outstanding

6.5c. Percentage of value of property located during the inventory cycle for each of the inventories conducted -- Stores

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
> 99%	99.7%	1	1	Outstanding

Discussion of 6.5

The percent of inventory value accounted for has improved over recent years. In FY02 the metric was redesigned to coincide with the reporting requirements of DOE Property Management Regulation 109-1.5201 (i.e., reporting property located instead if property *not* located. Personal property protection responsibilities were highlighted in the Lab-wide Security Awareness briefing, and supervisors and line managers were kept informed of inventory status and/or issues. Home loan procedures were rewritten to include supervisor and senior management review, ensuring property used at home was in direct relation to official Lab business.

6.6 Store Inventory Reduction

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≥ 10%	10.4%	1	.9	Excellent

Discussion of 6.6

The 10.4% reduction correlates to an actual inventory reduction of \$64,872.92. (Although the reduction goal is 10% or more, a reduction of 11% or more is required to earn a full point and a rating of “Outstanding.”)

FINANCIAL MANAGEMENT

6.7 Number of CAS violations

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
0 violations	0 violations	1	1	Outstanding

6.8 Dollar percentage of invoices deemed unallowable

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
< 1%	.37%	1	1	Outstanding

6.9 Percentage of vendor invoices paid with discounts lost

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
< 1%	.01%	1	1	Outstanding

Discussion of 6.9

The Laboratory realized a savings of \$77,052 through the prompt payment of discount invoices, taking advantage of over 99% of discounts offered.

6.10 Percentage of annual actual cost variance from budget for each overhead pool

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≤ 3%	1.8%	1	1	Outstanding

Discussion of 6.10

The accuracy of the target G&A rate has significant importance in the budgeting process, the availability of funds for research projects, and the organization's fiscal integrity. A target rate that is too high causes excess funds to be reserved for G&A, impacting the ability of research projects to fully utilize their funding. A target rate that is too low could cause a project to come up short of funds at year-end when the rates are finalized.

6.11 Number of occurrences that Cost Management Report had to be resubmitted to Contracting Officer – DOE Site Office

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
0	0	1	1	Outstanding

6.12 Number of audit errors in travel expense reports

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
< 2%	0	1	1	Outstanding

PROCUREMENT

6.13. Average procurement cycle time

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
< 11 days	5.7 days	3	3	Outstanding

Discussion of 6.13

Procurement cycle time is a key indicator for procurement effectiveness, not only from the standpoint of customer satisfaction but also because it directly relates to the overall productivity of the procurement process.

6.14. Percentage of total available purchasing dollars awarded to small business (SM) concerns, small women-owned (WO) business concerns, and small disadvantage (SD) business concerns

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≥ 50% (SM)	57.4%	1	1	Outstanding
≥ 6% (WO)	12.5%	1	1	Outstanding
≥ 6% (SD)	9.5%	1	1	Outstanding

Discussion of 6.14

All Small Business Program goals for FY02 were exceeded through a collaborative effort involving Business Services staff and Laboratory customers. Such collaboration is vital to the success of this socio-economic program.

HUMAN RESOURCES AND SERVICES

6.15a Percent of action oriented diversity commitments, as established in the Affirmative Action Plan (AAP), Section VII-C, completed during the fiscal year

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
≥ 90%	100%	1	1	Outstanding

Discussion of 6.15a

We continue our strong focus on identifying and connecting with minority recruiting sources and expanding our community outreach activities. Although funds were not available to the extent we had hoped, all diversity commitments were met.

DIVERSITY COMMITMENT	ACCOMPLISHMENTS
1) Unless limited by budget constraints, Employment Administrators will participate in at least three job/career fairs with high female/minority representation.	<ul style="list-style-type: none"> Participation in career fairs was limited this year by budget constraints. However, Employment team members did participate in two career fairs: an NAACP Career Fair in Washington D.C. and a Hampton University Career Fair in Hampton, VA. In addition, the Employment Manager visited ECPI to arrange for a special Jefferson Lab Day when Lab hiring managers will have a tour and meet ECPI students who are potential interns or new hires. ECPI is a rich source of minority candidates in the local area.
2) The EEO/AA Coordinator and Employment Administrators will provide continuing assistance to Lab management in integrating the Lab's minority and female goals into their staffing plans.	<ul style="list-style-type: none"> The Lab maintains a cooperative education program with local high schools and colleges with 25% minority representation and 41.7% female representation. The Employment Department continues active efforts to recruit minority and female candidates for this program by staying in close contact with the school coordinators. The program serves to stimulate interest in engineering and science. We also continue to support the Science Education's BEAMS Program and the Hampton University Graduate Studies program.
3) In partnership with the Newport News Housing & Redevelopment Authority, Jefferson Lab will continue to support the Welfare to Work Program by providing training to program participants, typically females, to prepare them to enter the workforce with a skill.	<ul style="list-style-type: none"> In partnership with the Newport News Housing & Redevelopment Authority, Jefferson Lab continues to support the Welfare to Work Program by providing training to program participants. One trainee completed our training program this year and is currently employed in the community. A second trainee started with the Lab in mid-September. We have altered the program somewhat, determining at the outset what kind of career each trainee would like to have and tailoring our training toward building the appropriate skills. For example, a trainee wanted a career in administrative support so we had her working with the Lab's computer staff followed by an assignment in a division office.
4) SURA's Small Business Representative will support JLab's Small Business and Small Disadvantaged Business Subcontracting plan by contacting minority and small business trade associations and business development organizations, as well as attending small and minority business procurement conferences and trade fairs.	<ul style="list-style-type: none"> JLab's Small Business Representative is a member of the executive board of the Virginia Minority Supplier Development Council, which replaced the previous Tidewater Regional Minority Purchasing Council (TRMPC). He also attended a DOE-wide Small Business Conference and two trade fairs. SURA received another "Corporate of the Month" award from the Virginia Minority Supplier Development Council. The Lab won a Secretary of Energy Award for Technology Transfer to Small Business. SURA exceeded all its negotiated goals in its Small Business Subcontracting Plan.

5) The minority and female recruiting sources identified in FY2000, as well as any newly identified sources, will be contacted for SURA/Jefferson Lab job opportunities.	<ul style="list-style-type: none"> This is an ongoing effort. We continue to identify additional Web sites for minority and female candidates and pursue contacts with them whenever possible. At the recent Hampton University Career Fair, we made contact with over 60 minority students and graduates.
6) Jefferson Lab will continue to advertise job vacancies, including targeted advertising, and the Internet to increase our pool of qualified minorities and females, particularly for technical positions.	<ul style="list-style-type: none"> As in the previous year, the Lab utilizes the services of The Ad Club to produce and place our recruitment ads, focusing both on appropriate placement and our desire for qualified female and minority candidates. Specialized Web sites continue to be an effective source for Lab technical jobs.
7) A salary equity review will be conducted to identify any salary alignment disparities for females and minorities.	<ul style="list-style-type: none"> As part of the Lab's annual compensation review, alignment issues were considered. Increases in base salaries for minorities are now equal to those of non-minorities; base salaries for females increased 0.8% compared to 0.4% for males.
8) The Employment Staff will continue to utilize formal (associations) and informal (employees and colleagues) networks to locate qualified minorities and females for open positions.	<ul style="list-style-type: none"> Employment staff contacted a network of placement offices and university advisors at minority institutions to recruit qualified minority and female candidates. Employment staff contacted career and alumni placement offices at all SURA universities, expressing our interest in connecting to their alumni regarding position vacancies. Recruiting sources with other employers in the local area also were networked. The Employment Manager attended the annual DOE Diversity Conference. Employment Administrators attended an Employer Advisory Board Meeting, ECPI's Spring Advisory Board meeting, several meetings of the Peninsula Personnel Association, and a SHRM Legal Update.

6.15b. Representation of protected classes within each EEO-1 category at end of fiscal year compared to the beginning of the fiscal year (adjusted for voluntary separations).

Goal	Raw Score	Point Value	Points Awarded	Adjective Rating
100% maintained	95% maintained	1	.9	Excellent

Discussion of 6.15b

We are pleased that there is only one job category (minority managers) in which we did not maintain our representation. That category experienced a slight decrease—from 9.6 at the end of FY01 to 9.2 at the end of FY02. There was no change in female officials, since there were no additions to the job group during the year; however, the addition of a female Assistant Director and the appointment of a female as Associate Director of Administrative Services will give us full utilization in this category in FY03. We increased our female representation in the Computing job group from 26.1% to 28.3%. Using the one-person rule (the most stringent for employers), we are fully utilized in all other job groups, bringing us a raw score of 95% and an outstanding rating for the first time in several years.

JOB CATEGORY	MINORITY %				FEMALE %			
	AVAILABILITY	REPRESENTATION		ASSESSMENT	AVAILABILITY	REPRESENTATION		ASSESSMENT
		9/30/01	9/30/02			9/30/01	9/30/02	
1A Officials	11.0	12.5	20.0*	Fully Utilized	19.3	0.0	0.0	Maintained
1B Managers	12.3	9.6	9.2	Not Maintained	22.0	24.7	23.7	Fully Utilized
1C Buyers	20.2	28.6	28.6	Fully Utilized	53.6	71.4	71.4	Fully Utilized
2A Administrators	14.8	13.5	14.6	Fully Utilized	44.8	75.7	80.5	Fully Utilized
2B Scientists	9.4	22.7	19.8	Fully Utilized	5.8	14.8	14.3	Fully Utilized
2C Computing	13.7	15.2	17.4	Fully Utilized	32.4	26.1	28.3	Maintained
2D Engineering	13.3	10.9	14.1	Fully Utilized	8.3	7.2	9.9	Fully Utilized
3 Technicians	16.5	19.5	19.6	Fully Utilized	18.1	20.1	18.3	Fully Utilized
5 Office/Clerical	24.1	30.3	31.3	Fully Utilized	90.8	94.0	93.8	Fully Utilized
6 Skilled Trades	22.5	22.2	19.0	Fully Utilized	3.9	16.7	14.3	Fully Utilized

* The size of this group decreased in FY02 due to a voluntary resignation.

Legend:
Maintained: Underutilized but maintained/increased representation.
Not Maintained: Underutilized and representation decreased.
Fully Utilized: Achieved/maintained full representation.

This metric should be retained in FY03.

6.16 Sustainable EEOC charges

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
0	0	1	1	Outstanding

Discussion of 6.16

The Lab continues its proactive approach to investigating and resolving issues that could have resulted in external complaints. As a result, no EEOC charges were filed during FY02.

This metric remains a valid measure of performance and should be retained in FY03.

6.17 Achieve compensation positions aligned with market practices to reflect the Lab's mid-market compensation philosophy.

Goal	Raw Score	Point Value	Points Awarded	Adjectival Rating
+ 3% of market average	-2% of market average	1	1	Outstanding

Discussion of 6.17

This compensation metric aligns with the Lab's mid-market compensation philosophy. The Lab implemented a 3.5% merit increase program and focused equity adjustments to target job groups and positions. Also, in response to external market movement in the electrical engineering and information sciences professions, a special adjustment fund was negotiated with DOE and implemented mid-year FY01. In FY02 a 0.4% market adjustment for lower level scientists was implemented. These were the primary factors in the improvement in this metric.

This metric remains a valid measure of compensation performance and should be retained in FY03.

6.18 Percent of three-year rolling average of annual increases in premium cost relative to market.

Goal	Raw Score	Point Value	Points Award	Adjectival Rating
≥ 5% below market data	.8% above market data	1	.8	Excellent

Discussion of 6.18

For the 2002 benefits premium year, we negotiated reasonable premium rates for all medical insurance programs in spite of increasing rates nationally. Overall, for FY02 the Lab experienced an increase of 10% in premium rates. This increase was significantly influenced by the rising costs of prescription drugs and hospitalization. The three-year trend in benefit costs has been comparable to the market.

This valid measure of performance should be retained for FY03.

6.19 Percent of current year's papers written by Jefferson Lab staff or Users placed online.

Goal	Raw Score	Point Value	Points Award	Adjectival Rating
≥ 97%	100%	1	1	Outstanding

Discussion of 6.19

100% of the 251 papers assigned numbers were uploaded to OSTI in FY02, and 64 papers were uploaded as no full text available. The average time to complete was less than one day each.

This measure of performance should be retained for FY03.

CYBER SECURITY

6.20 Number of times Jefferson Lab computer systems were compromised or used to attack other systems.

Goal	Raw Score	Point Value	Points Award	Adjectival Rating
≤ 1	1	1	1	Outstanding

Discussion of 6.20

For the period of October 1, 2001 to September 30, 2002, there was one system-level (root) compromise. On January 10, 2002, a secondary, publicly accessible Web server was compromised through the ssh CRC32 Compensation Attack Detector Vulnerability. A root kit (a hybrid of t0rnkit) was loaded and a sniffer installed. The modified system files were reported within an hour of the compromise. The machine was off line for about 20 hours for analysis and reload. There was no loss of data and no display of non-standard Web pages.

There was one application compromise (January 9, 2002) in which a recently installed, unpatched ColdFusion server was infected with the CodeRed worm. The system was subsequently off line for about seven hours.

There were no user-level compromises and no instances of Jefferson Lab machines being used to attack other systems.

7. Responsible Institutional Management

Summary of Performance Measures

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
7.0	Responsible Institutional Management					
	• Strategic Planning	40	37	100%	92.5%	Outstanding
	• Managerial Effectiveness	40	36	100%	90%	Outstanding
	• Organizational Culture	20	20	100%	100%	Outstanding
TOTAL RESPONSIBLE INSTITUTIONAL MANAGEMENT		100	93	% of assigned pts = 93%		Outstanding

Introduction

Responsible Institutional Management (IM) is assessed via a biennial peer review process, which looks both at how the Lab is being managed and at how management plans and prepares for the Lab's future. Categories assessed include strategic planning, managerial effectiveness, and organizational culture. The FY02 IM Review was the first since the change in Lab leadership and recent organizational changes made to better align the Lab for the future.

Summary of 2002 Institutional Management Review

The biennial IM review held October 22-23, 2002, was chaired by Dr. Charles Shank, Director at Lawrence Berkeley National Laboratory. The committee included Dr. John Armstrong, retired VP of IBM, Bruce Chrisman, Fermilab AD for Administration and Chair of the FY02 Administrative Practices Peer Review, Dr. Charles Glashauser of Rutgers University, Dr. Walter Henning, Scientific Director of GSI Darmstadt, Dr. Donald Langenberg, Chancellor Emeritus of the University of Maryland system, Mr. Mike Telson, Director of National Laboratory Affairs for the University of California's Washington office, and Dr. Brad Tippens, Program Manager for Hadron Nuclear Physics in the Office of Science and Chair of the FY02 Science and Technology Peer Review. The IM review comprised nearly two days of presentations and discussions covering the Laboratory's strategic plan and its view of the future, how performance is measured, operations, science and technology, business practices, community outreach and relations, and organizational alignment. Results of the Science and Technology and Administrative Practices reviews were presented by Brad Tippens and Bruce Chrisman, and a presentation was made by Dr. Alan Nathan of the User Group. In addition, Panel members had the opportunity to take a comprehensive tour of the Lab and to interact informally with Lab staff at a luncheon.

The Panel described Jefferson Lab as a "very impressive institution which is well managed and has a clear vision of its future" and rated performance as "Outstanding," with the Lab receiving 93 out of 100 available points. In the area of Strategic Planning, the Panel felt that the Lab presented an "impressive roadmap for the future building on core competencies... and extraordinary contributions to science." Their primary suggestions in this area had to do with establishing a scientific User base for the FEL as a scientific tool and the synergy that HELIOS offers to the Jefferson Lab program. In the area of Managerial Effectiveness, the Panel recognized that the leadership transition at the Lab had been smooth and effective, and it stated that the recent reorganization had been well thought out and focused. The Panel felt that Lab management was utilizing its funding effectively and was acting proactively in identifying and addressing challenges. Organizational Culture was judged outstanding, reflecting an organization doing a great job but still making real moves to improve. Jefferson Lab's

outreach programs, particularly its education outreach efforts, were singled out as noteworthy and of real benefit. The math and science education programs were seen to be “without peer among the national laboratories” and “outstanding models worthy of national attention and emulation.”

Many specific practices and initiatives in each of the review categories are mentioned in the full text of the report (see Attachment D), which also includes an assessment of the areas in which management has focused since the last review. The Panel’s suggestions, along with management’s planned focus areas, are reflected in the Principal Areas of Emphasis for FY03.

Principal Areas of Emphasis for FY03

The Peer Review Panel offered several suggestions in each of the management areas that Lab leadership plans to address in the coming year. Management agrees that the primary challenges include securing sustained, sufficient funding; beginning the 12 GeV project; and building an accelerator R&D program that is beneficial to Jefferson Lab and the Office of Science as well as other accelerator-based research. Ensuring a stable funding profile for the FEL and developing a strong User base for its science, and capitalizing on strong public outreach programs including education also are challenges on which Lab leadership plans to continue to focus its attention. Management priorities for the coming year are:

- Continue an outstanding NP research program at the forefront of the field with commensurate reliable operations, theory support, and lattice QCD initiative.
- Realize the 12 GeV upgrade on the shortest practical time scale.
- Commission the 10kW upgrade of the FEL; develop a science case and establish an operations funding stream for the FEL.
- Continue successful delivery on Lab commitments to the SNS project.
- Strive for increased efficiencies and strengthen accountability in the organization.
- Continue vigilance and performance within the areas of ISM and security, maintaining cost-effective, value added service to staff and Users.
- Develop and implement a focused accelerator R&D program to advance state of the art necessary for Jefferson Lab’s future and beneficial to other future scientific facilities.

8. Spallation Neutron Source

Overview

Jefferson Lab, one of the six partner labs building the SNS in Oak Ridge, Tennessee, is responsible for the SRF cryomodules and the refrigeration system. JLab's SNS metric is based on the SNS "early finish" schedule milestones, which finishes the Linac and provides 1 GeV beam 18 months prior to CD-4. We were able to hold our part of the project schedule baseline.

FY02 was the second full year of the Lab's involvement in the SNS partnership; our formal involvement having started in February, 2000. We completed and tested the prototype cryomodule; the three cavities reached 140% to 180% of their design gradients, and all exceeded the required quality factor.

The Fundamental Power Coupler R&D program also was completed; six couplers were tested at LANL and six (two from LANL plus four additional) were tested at Jefferson Lab. The order for the remaining production couplers was awarded subsequently.

The 1MW RF system was installed, commissioned, and used to test the prototype cryomodule and six Fundamental Power Couplers.

All the production cryomodule part procurements are in place and 50% costed.

The first three of four phases of the Lab's cost reduction proposal for SNS to maintain 1 GeV beam energy with a reduced number of High- β cavities and RF systems have been funded. The electro-polish system was installed, and the cryomodule test facility was upgraded.

All of the refrigeration hardware was completed. The last contract, the 4.5K Coldbox, was delivered two weeks into FY03. The warm compressors and Kinney pumps are in place and installation is underway. The scheduled occupancy date for the Central Helium Liquifier (CHL) building is November 12, 2002.

Transfer line fabrication for the tunnel supply and half of the return was completed. Installation was completed for both tees to the CHL building and half of the tunnel supply.

Principle Areas of Emphasis for FY03

- Production of 10 Medium- β cryomodules
- Electro-polish system commissioning and process development
- Warm compressor installation and commissioning
- 4.5K Coldbox delivery and installation
- 2.1 K Cold Compressor Coldbox assembly at Jefferson Lab and shipping to ORNL
- Transfer line fabrication completion and continuing of installation

Summary of Performance Measures

PM	Description	Point Value	Points Awarded	Goal	Raw Score	Adjectival Rating
8.0	Spallation Neutron Source	35	35	≤ 1 month behind schedule	.6 month behind schedule	Outstanding
TOTAL SPALLATION NEUTRON SOURCE		35	35	% of assigned pts = 100%		Outstanding